CLAIMS:

1. An encoder for encoding audio signals, the encoder comprising

means (1) for generating a monaural signal (MAS) comprising a combination of at least two input audio signals (x(n), y(n)), and

means (10) for generating a set of spatial parameters (IPDi; ICi) indicative of spatial properties of the at least two input audio signals (x(n),y(n)), wherein the set of spatial parameters (IPDi; ICi) at least comprises an inter-channel coherence value (ICi) and/or an inter-channel phase difference value (IPDi), and wherein the means (10) for generating the set of spatial parameters (IPDi; ICi) comprises

means (106; 106, 107) for generating a cross-correlation function (Ri; Pi) of the at least two input audio signals (x(n), y(n)),

means (111) for determining a complex coherence value (Qi) by summing values of the cross-correlation function (Ri; Pi), and

means (112) for determining an absolute value of the complex coherence value (Qi) to obtain an estimate of the inter-channel coherence value (ICi), and/or

means (113) for determining an argument of the complex coherence value (Qi) to obtain an estimate of the inter-channel phase difference value (IPDi).

2. An encoder for encoding audio signals as claimed in claim 1, wherein the means (10) for generating the set of spatial parameters (IPDi; ICi) comprises means (102, 103) for transforming the input audio signals (x(n), y(n)) into a frequency or sub-band domain to obtain audio signals in the frequency or sub-band domain (X(k), Y(k)), and wherein the means (106; 106, 107) for generating the cross-correlation function (Ri; Pi) are arranged for calculating a complex cross-correlation function (Ri; Pi) as a multiplication of one of the audio signals in the frequency or sub-band domain (X(k), Y(k)) and the complex conjugated other one of the audio signals in the frequency or sub-band domain (X(k), Y(k)).

3. An encoder for encoding audio signals as claimed in claim 2, wherein the means (106; 106, 107) for generating the cross-correlation function (Ri; Pi) are arranged for calculating a corrected cross-correlation function (R'i) being the cross-correlation function

(Ri) wherein its argument (ARG) is replaced by a derivative (DA) of said argument (ARG), and wherein the means (111) for determining the complex coherence value (Qi) is arranged for summing the values of the corrected cross-correlation function (R'i).

4. An encoder for encoding audio signals as claimed in claim 1, wherein the means (10) for generating the set of spatial parameters (IPDi; ICi) comprises means (102, 103) for transforming the input audio signals (x(n), y(n)) into a frequency domain to obtain audio signals in the frequency domain (X(k), Y(k)), and means (104, 105) for dividing the audio signals in the frequency domain (X(k), Y(k)) into corresponding pluralities of sub-band signals (Xi(k), Yi(k)) associated with frequency sub-bands (i), and wherein

the means (106; 106, 107) for generating the cross-correlation function (Ri; Pi) is arranged for determining the cross-correlation function (Ri); Pi) from the sub-band signals (Xi(k), Yi(k)) for at least each one of the frequency sub-bands (i) belonging to a subset of the frequency sub-bands (i),

the means (111) for determining the complex coherence value (Qi) is arranged for summing the values of the cross-correlation function (Ri; Pi) in at least each one of the frequency sub-bands (i) belonging to the subset, and

the means (112) for determining the absolute value of the complex coherence value (Qi) is arranged for obtaining the estimate of the coherence value (ICi) for at least each one of the frequency sub-bands (i) of the subset, and/or

the means (113) for determining the argument of the complex coherence value (Qi) is arranged for obtaining the inter-channel phase difference value (IPDi) for at least each one of the frequency sub-bands (i) of the subset.

5. An encoder for encoding audio signals as claimed in claim 4, wherein the means (106; 106, 107) for generating the cross-correlation function (Ri; Pi) are arranged for calculating:

for frequency sub-bands (i) below a predetermined frequency, the cross-correlation functions (Ri; Pi) as a multiplication of one of the sub-band signals (Xi(k), Yi(k)) and the complex conjugated other one of the sub-band signals (Xi(k), Yi(k)), wherein the means (111) for determining the complex coherence value (Qi) is arranged for summing the values of the cross-correlation function (Ri; Pi) in at least each one of the frequency sub-bands (i) of the subset, and

for frequency sub-bands (i) above the predetermined frequency, corrected cross-correlation functions (R'i) being the cross-correlation function (Ri) wherein its argument (ARG) is replaced by a derivative (DA) of said argument (ARG), and wherein the means (111) for determining the complex coherence value (Qi) is arranged for summing the values of the corrected cross-correlation function (R'i) in at least each one of the frequency sub-bands (i) of the subset.

6. A method of encoding audio signals, the method comprising

generating (1) a monaural signal (MAS) comprising a combination of at least two input audio signals (x(n), y(n)), and

generating (10) a set of spatial parameters (IPDi; ICi) indicative of spatial properties of the at least two input audio signals (x(n), y(n)), wherein the set of spatial parameters (IPDi; ICi) at least comprises an inter-channel coherence value (ICi) and/or an inter-channel phase difference value (IPDi), and wherein the step of generating (10) the set of spatial parameters (IPD; IC) comprises

generating (106; 106, 107) a cross-correlation function (Ri; Pi) of the at least two input audio signals (x(n), y(n)) in a frequency domain,

determining (111) a complex coherence value (Qi) by summing values of the cross-correlation function (Ri; Pi), and

determining (112) an absolute value of the complex coherence value (Qi) to obtain an estimate of the inter-channel coherence value (ICi), and/or

determining (113) an argument of the complex coherence value (Qi) to obtain an estimate of the inter-channel phase difference value (IPDi).